

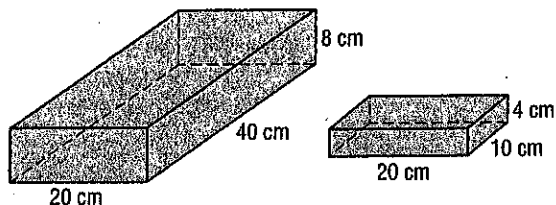
# 13-4

## Skills Practice

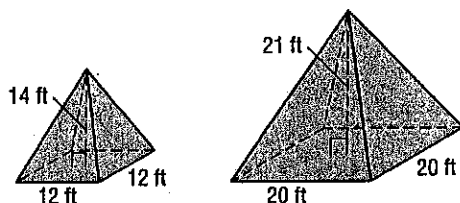
### Congruent and Similar Solids

Determine whether each pair of solids are *similar*, *congruent*, or *neither*.

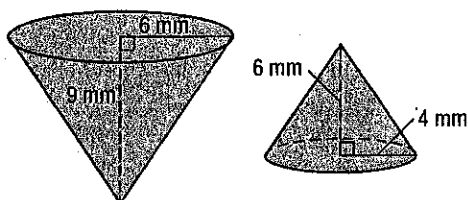
1.



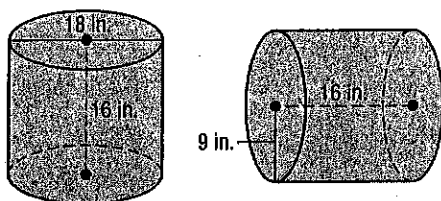
2.



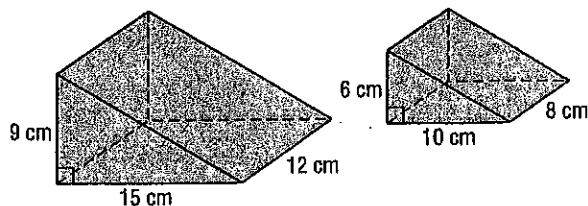
3.



4.



For Exercises 5-8, refer to the two similar prisms.



5. Find the scale factor of the two prisms.

6. Find the ratio of the surface areas.

7. Find the ratio of the volumes.

8. Suppose the volume of the larger prism is 810 cubic centimeters. Find the volume of the smaller prism.

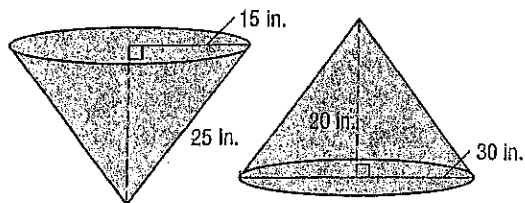
## 13-4

## Practice

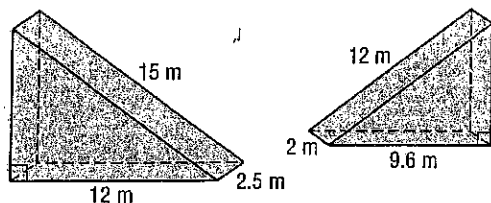
## Congruent and Similar Solids

Determine whether each pair of solids are *similar*, *congruent*, or *neither*.

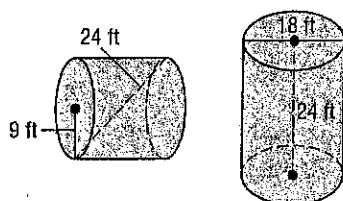
1.



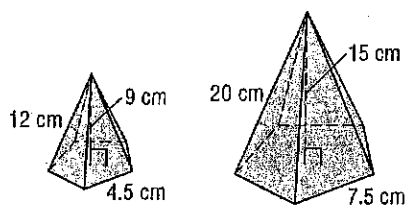
2.



3.



4.



For Exercises 5–8, refer to the two similar prisms.

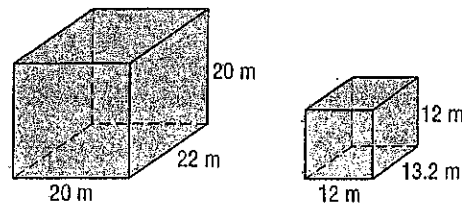
5. Find the scale factor of the two prisms.

6. Find the ratio of the surface areas.

7. Find the ratio of the volumes.

8. Suppose the surface area of the larger prism is 2560 square meters. Find the surface area of the smaller prism.

9. **MINIATURES** Frank Lloyd Wright designed every aspect of the Imperial Hotel in Tokyo, including the chairs. The dimensions of a miniature Imperial Hotel chair are 6.25 inches  $\times$  3 inches  $\times$  2.5 inches. If the scale of the replica is 1:6, what are the dimensions of the original chair?



NAME \_\_\_\_\_

DATE \_\_\_\_\_

SCORE \_\_\_\_\_

## Areas and Volumes of Similar Solids

1. Two cones have radii 8 and 12. The heights are 20 and 30.

Are the cones similar? \_\_\_\_\_

2. Two cylinders have radii 10 and 25. The heights are 36 and 90.

Are the cylinders similar? \_\_\_\_\_

3. Two cones have radii 16 and 48. The heights are 32 and 144.

Are the cones similar? \_\_\_\_\_

4. The heights of two right prisms are 9 and 15. The bases are squares with sides 27 and 45. Are the prisms similar? \_\_\_\_\_

5. Two similar cylinders have radii 5 and 8. Find the ratios of the following:

a. heights \_\_\_\_\_ b. total areas \_\_\_\_\_ c. volumes \_\_\_\_\_

6. Two similar cones have volumes  $8\pi$  and  $64\pi$ . Find the ratios of the following:

a. radii \_\_\_\_\_ b. lateral heights \_\_\_\_\_ c. lateral areas \_\_\_\_\_

7. Two similar cylinders have lateral areas  $36\pi$  and  $81\pi$ . Find the ratios of the following:

a. heights \_\_\_\_\_ b. total areas \_\_\_\_\_ c. volumes \_\_\_\_\_

8. Two similar pyramids have heights 3 and 5. Find the ratios of the following:

a. base areas \_\_\_\_\_ b. total areas \_\_\_\_\_ c. volumes \_\_\_\_\_

9. Two similar pyramids have volumes  $27\pi$  and  $64\pi$ . Find the ratios of the following:

a. heights \_\_\_\_\_ b. base areas \_\_\_\_\_ c. total areas \_\_\_\_\_

10. Two spheres have radii 4 cm and 10 cm. Find the ratios of the following:

a. areas \_\_\_\_\_ b. volumes \_\_\_\_\_

11. Two spheres have diameters 18 and 24. Find the ratios of the following:

a. areas \_\_\_\_\_ b. volumes \_\_\_\_\_

12. Two similar pyramids have volumes 24 and 648. Find the ratios of the following:

a. heights \_\_\_\_\_ b. base areas \_\_\_\_\_ c. total areas \_\_\_\_\_

13. Two balls made of the same material have radii 9 cm and 12 cm. If the smaller ball weighs 3 kg, how much does the larger ball weigh? \_\_\_\_\_